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A

FAMILIAR DISSERTATION

ON THE

CAUSES AND TREATMENT OF THE DISEASES

OF THE

TEETH,

With explicit Instructions for their management, so as to render them white and firm in their Socket,

AND TO PRESERVE THEM FROM

CARIES, TOOTH-ACH, &c.

BY J. P. HERTZ,

SURGEON DENTIST.

THE FOURTH EDITION CORRECTED AND ENLARGED,

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OF THE STRUCTURE OF THE TEETH, &c.

THE Teeth are the hardest and whitest of the bones. They are originally wanting, or rather do not appear till there is a necessity for their use, hence they are unfolded at different periods, on which account dentition is divided into different stages. In the adult, or at full maturity, there are thirty-two in both jaws; and this number they never exceed, though they sometimes fall short, having been found only twenty-eight.

In its general structure, each tooth is divisible into three parts, viz. body, neck, and fang. The body is that part which appears above the gums, its fang or root is that part buried in the socket or jaw, and its neck is the intermediate line between the two, close to the edge of the gum, and marked by a slight circular depression.

In its substance, each tooth consists of its enamel, or outer covering, and its osseous part, or internal structure. The former of these is a substance peculiar to teeth, hard, white, and compact, and only allotted to that part of them situated without the socket. In its formation it consists of a fibrous or striated texture, having its fibres directed from the circumference towards its centre. The thickness of the enamel is generally not more than one-eighth of an inch, though it varies a little at different parts, being gradually thinner towards the neck, and thickest and strongest at the surfaces or active extremities.

The osseous part of the teeth is the same as other bones, only in the teeth it would appear to receive a closer condensation than elsewhere. It comprises the whole of the tooth, except the outer covering of the body by the enamel.

Though from their very condensed structure it is impossible to demonstrate the vascularity of teeth in a great degree, yet the circumstances which attend their diseased state clearly shew their possession of circulation, sensibility, and absorption, the same as prevails in the soft parts.

The teeth possess two appendages, the periosteum and gums; the former common to them with other bones, and extending from the fang to the neck; the latter, a peculiar red substance, or investing cushion, covering the alveolar processes, leaves a perforation for each tooth through its highly vascular and hard elastic texture. The degree of its hardness is very great in infancy, and it has even a ridge extending through its whole length, which is lost in age.

The teeth, from their shape and offices, are divided into three different classes, the *Incisores or cutting teeth, Canini or Dog Teeth,* and *Molares, or grinders.*

The incisors are the four teeth in the fore part of each jaw. In examining them, they have each two surfaces that meet in a sharp edge. Their anterior surface is convex, and their posterior one somewhat concave, and being usually broader and thicker, especially the two first in the upper jaw, it falls over those of the under jaw.

The canine derive their name from their resemblance to the tusks of a dog, and they are at the same time the longest of all the teeth. Their fangs are larger than those of the incisors, and they are placed one on each side the incisors in each jaw. Their base appears in form of a wedge pointed in the middle.

The molares, or grinding teeth, are ten in each jaw. They differ from the former in their use, as well as in their structure. Instead of a single fang or root, they have two in the under, and three in the upper jaw; and they likewise differ from themselves, as well as from the other classes. Thus the two first possess a form between the incisors and molares. They possess, like the incisors, but one root, but they terminate like the canine in two points, of which the anterior one is highest. The two next grinders are much longer, and their surface possesses five protuberances, two on the inner, and three on the outer side. The last molaris is shorter and smaller than the rest, and so late in its appearance, as to receive the name of the Dens Sapientiæ.

The formation of the teeth takes place at a very early period. About the fourth month the alveolar process is found only a shallow longitudinal groove, divided by slight ridges into a number of intermediate depressions, which compose at last the future alveoli or sockets. But in the fœtus there is found only the outer shell of five deciduous teeth and of one permanent tooth on each side the jaw. Between the inner side of the deciduous teeth and the alveoli in the fœtus, little capsules are placed, and connected by processes with the gums, in which the incisors and canine are afterwards formed; but at this time there is no appearance of the rudiments of any of the teeth. The first appearance of the teeth, is the filling of the alveolar depressions with small pulpy substances, included in a vascular membrane. In forming the teeth, the surface of the pulp first begins to harden, the ossification proceeding from one or more points, according to the kind of tooth that is to be formed. Thus the incisors and canine display but one ossifying point, the molares four or five.

By the progress of this ossification, the pulp is gradually converted into bone, and on its under surface, last of all, the fang is formed. The bony part receives then a crust of enamel, which is secreted in a manner not yet explained, and is equally compact before as after birth. During the progress of the enamel, the lengthening of the fang or root takes place, and according to the number of fangs, the points of ossification to form them are conspicuous. By the growth of the fang, the tooth is pushed upwards, and accordingly makes its appearance beyond the gum, about the fifth, sixth, or eighth month; although we find, on the one hand, instances of children who have been born with them; and on the other, where they have not appeared till a late period. In the former case, their number is confined to the incisors. They have even at times been discovered in a fœtus of seven or eight months, but in all such premature examples, they have undergone a rapid decay in the course of a few weeks or months from their first appearance. In the latter case they have been known so late as from thirteen to nineteen months before their first marks of protrusion.

The common order of protrusion is a subject that should be much attended to. In each tooth, two stages of its progress may be remarked; the one is the stage of its increase or growth; the second, of its progress to appearance or actual denudation. The symptoms of the first are often nice to discriminate, and also most fatal at times to the constitution of the child. Those of the second are generally denoted by certain external marks.

From examining the form of the teeth, it will occur that the difficulty of protrusion must depend on their departure more or less from an acute or pointed figure, and, also, according to the state of the parts obstructs their progress. Hence as the incisors possess both an acute form, and as the jaw is there thinnest, their protrusion falls to be first. The two small incisors of the lower jaw cut the gum about the seventh month, or earlier. They follow each other in about fifteen days; the large ones of the upper jaw appear nearly at the same time, after which the side ones of the lower jaw appear in course, and are followed by the same in the upper jaw, and thus the incisors are complete. At eleven months, the canini of the lower jaw, which form the second order in point of acuteness of form, divide the gum, and, in the course of some days after, are accompanied by those of the upper jaw. At a year old or upwards, two small molares advance in the lower jaw, and in a few days are joined by those in the upper. The remaining four are generally not seen till two years of age or upwards, and when appearing they complete the milk teeth, or first set. But the interval between the different teeth is by no means so exact as here stated, and often a very considerable lapse of time intervenes between them.

The first set of milk teeth, twenty in number, are remarked by authors, as distinguished by their superior whiteness and regularity. It has been supposed by some anatomists, that they had no root; but this opinion is evidently erroneous; there is however no doubt that the root is destroyed in part by the time they fall, or are succeeded by a second set; and that even the septum of the sockets is obliterated. This naturally happens as a consequence of pressure by the second set, in their progress to protrusion.

The first or temporary set is completed by the age of three years, and in strong robust children by two, but seldom sooner. Their protrusion or the first dentition often produces a considerable degree of morbid irritation of the whole nervous system, so as frequently to disturb the functions of the brain and occasion convulsions, and in this state of increased excitability of the nerves, inflammation is very apt to take place either in the brain, lungs or intestines, which generally terminates fatally.

The second set or adult teeth, replace the temporary teeth from the age of seven to fourteen, during which the former set are gradually shed. These permanent teeth are all found in a distinct set of alveoli, and by the increase of the latter, so as gradually to obliterate the former alveoli, their teeth drop out, and they totally disappear. But besides this, the second sockets are larger, and acquire also additional teeth, or three grinders on each side, by the lengthening of the jaw. Hence the face, from the shortness of the jaw, is flatter and rounder in children than in adults.

These last molares cut the gum at different periods, The first generally passes at twelve years of age, the second at seventeen or eighteen years, and the third, or Wisdom Tooth, not till twenty or thirty, sometimes not till thirty-five.

Though two sets of teeth are the common portion of man, yet, in some rare instances, a third set has made its appearance after the age of sixty. This appearance has commonly been attended with other peculiar circumstances, marking somewhat of an effort of nature towards a complete renovation of the system.

The form of the human teeth, thus examined appears different from those of all other animals. Thus the canini are not longer than the rest, nor yet curved as in the beasts of prey. The incisors are not so sharp as in animals, and the molares are flatter and more blunt in their edges. From these peculiarities therefore, man is designed for a different or mixed aliment, and is fitted equally to live on animal or vegetable diet.

Chemical Analysis of a Tooth—The teeth consist of two parts, bone and enamel. The former consisting of jelly, medullay oil, earth, with phosphoric acid, and gluten; while the latter is entirely phosphate of lime cemented by gluten.

Of the Diseases of a Tooth.

The principal morbid affection of the tooth is *tooth-ache,* perhaps the most frequent disease to which the body is subjected. The chief symptom of this affection is pain, commencing with a sensation of a certain thrilling tremor, changing soon to acute uneasiness more or less diffused, but chiefly towards the root, sometimes along the gum, and one side of the jaw. This pain has been known so exquisite as to deprive a person of reason; and its consequences when rising to a height, are inflammations of all the neighbouring parts, particularly the ear and cheek of that side. The cause of tooth-ach may be referred to three heads: caries of the part; simple inflammation; or morbid sensibility. The first is most general. It begins externally with a small black spot on the crown, superficial; but which will soon spread, and enter the substance of the teeth. From one tooth it spreads to another, and seems in some degree to be contagious. Frequently it is stationary; at other times its progress is very rapid. It occurs chiefly from twenty five to fifty. The cause of this caries is uncertain; from observation, however, of those living in a natural state, or the negroes, whose teeth are commonly sound, it must be connected with the mode of life, or external causes.

The second, or simple inflammation, is a very frequent cause of tooth-ach, where the part has been exposed to a stream of air, or the person is confined to a damp situation; and in these cases the inflammation is generally extended to the neighbouring parts, and affects more than one tooth.

The third cause, or morbid sensibility of the part, is also very frequent; and arises either from the practice of too often rubbing, and thus thinning the enamel; from the use of saline substances, producing tooth-edge; or from certain constitutional diseases, as hypochondriasis, rheumatism, gout, &c. It is also an occasional symptom of pregnancy.

The radical cure of the tooth-ach has been considered as depending on extraction; but previous to this, it will be proper to examine the different palliatives employed, as suited to its different causes, before having recourse to this operation.

Palliative Treatment in Carious Tooth Ach.—Where tooth-ach arises from caries, it consists properly in irritation of a denuded nerve; and the treatment pointed out is either preventing the exposure of the nerve to the action of the morbid cause, or else rendering it insensible to its operation. The first is done by filling up the corroding part, where confined to one part, either with a soft substance, as the following;—Take of gum mastic, white wax, of each one drachm. To be melted together in a spoon by a gentle heat; with this composition the cavity of the tooth should be completely filled. Some employ tinfoil, but in its application, much accuracy is required to have effect, and it must be renewed as often as it wears away; and care should be used to avoid hard substances in mastication. Where properly done, it has been known to last for years. The second mode of treatment, or rendering the nerve insensible. is performed in three ways: either by abating pain by the use of anodynes, as liquid laudanum, camphor, or some of the essential oils dropt into the tooth; secondly, by rendering it callous by caustics, as the concentrated acids, or lunar caustic, applied in the same way; or, thirdly, by destroying the nerve by means of the actual cautery, applied by a hot wire perforating the carious part, which is successful where there is only one root; or, which has the same effect, by separating the connection of the tooth with the socket by the operation of luxation, viz. pulling the tooth to the extent of separating its connection in the jaw, and then immediately replacing it.

For the purpose of allaying the morbid irritation of the nerve of a carious tooth, the most effectual remedy is a compound tincture recommended by Mr. Perry, of Farnham. This tincture which he terms "Essence for the Tooth-ache," allays the pain, and by covering the internal surface with a resinous gum, prevents a recurrence of the irritation by defending the nerve from the action of the air or acrid matter. This Essence is sold in London, by Bacon. 150, Oxford Street.

Inflammatory Tooth-ach.—Inflammatory tooth-ach is chiefly discovered by the permanence of the pain; by the apparent soundness of the tooth; and by general marks of inflammation. The treatment here consists in the same means as employed to abate inflammation in other parts, viz. topical blood-letting, by scarification of the gum, or by leeches, the application of a blister near the part, as on the cheek, or behind the ear, and the use of anodynes, particularly those promoting diaphoresis.

Nervous Tooth-ach.—Nervous tooth-ach is that which occurs without any evident cause in the seat of the disease, and may be divided into the partial and sympathetic. By the first is understood a general morbid sensibility of the teeth. This, as observed, is commonly the effect of rubbing, thinning the enamel, by which they are liable to pain from the slightest impressions, or what is termed tooth-edge. It is very frequent in children from the use of acid fruits, and in adults from a course of mercury. It is particularly severe at times on chewing.

The treatment consists, in children, in removing the acid. Keeping warm water in the mouth will also ease pain.

The second species, or sympathetic, is the frequent attendant of stomach complaints; and wherever this can be judged of from inspection of the tongue, or an acquaintance with the patient's habit, an emetic will be the most successful remedy. If arising from gout or rheumatism, anodynes given so as to excite diaphoresis will be highly useful. In pregnancy, however, this complaint, though sympathetic, requires to be treated as an inflammatory affection. Having thus employed the palliative treatment without effect, or with not so much effect as to satisfy the patient, extraction becomes at last the sole and sure resource, and the easiest method of doing this ought to be pursued.

Morbid Consequences of Tooth ach.

Gum Boil.—One of the most frequent consequences of tooth-ach is gum-boil, or the formation of an abscess in the vicinity of the disease of the tooth. Its usual symptoms are pain, inflammation, and swelling, proceeding to a certain extent, and enlarging the cheek, and sometimes the whole face. On the formation of the matter, which may be hastened by the application of a roasted fig or onion, the tumour points generally opposite to the diseased tooth, and bursting between the gum and the tooth, for the most part of the matter comes to be discharged, of a disagreeable taste, with alleviation of all the symptoms. This affliction is most common in cold damp situations. The continuance of the discharge is then determined by the state of the part; and where no caries exist, it heals up as a common wound; but where the latter takes place, the same process is renewed, and either extraction of the tooth, or exfoliation of the jaw becomes necessary to complete a cure. To promote the latter, should simple stimulant injections fail, as lime water, ardent spirits, tincture of myrrh, or bark, the parts are to be laid open by incision, and a free vent given to the discharge of the matter, a circumstance which, wherever confined or deep-seated, requires particular attention.

The constitutional treatment is here also of much importance, as such morbid symptoms are frequently connected with a taint of habit, particularly of a scrophulous kind.

Abscess of Antrum Maxillare.—Another consequence of tooth-ach is the same formation of matter in the antrum maxillare; though this may also be the effect of other causes.

The symptoms that mark this affliction, are severe continued pain of the cheek, for a considerable time before any apparent swelling, gradually diffusing over the surrounding parts, and terminating in a hard extensive tumor of the cheek. This tumor, in process of time, comes to be discharged, either by pointing at the cheek, procuring vent by the roots of the teeth, or at the nose. The first of these, however, is the most frequent termination. Whenever ascertained, the cure of this affliction consists in giving a free vent to the discharge, and that at the most dependent and convenient part, which is the situation of the second last molaris tooth. It is therefore to be extracted; and if no communication with the antrum, by the discharge of matter, then appears, the head of the patient being laid back on the knee of the surgeon, a small trocar may be put up through the socket of the tooth till it meets no resistance, when a discharge will immediately follow its being withdrawn; and after the matter is removed the opening is to be preserved by inserting a plug into it, by means of which an injection may be occasionally thrown up, to wash away the matter that forms, and dispose the parts to heal. Should the parts be carious, which is ascertained by the thin discharge and fœtid smell, the cure will be then more tedious, and not complete till exfoliation ensue.

Besides abscess of the antrum, indolent swelling of these parts, connected with scrofula, or spina ventosa, is apt to be formed. Its symptoms are an equal diffused swelling of the cheek, acquiring in its progress an elastic feel, and continuing colourless till towards its end. When opened, the affected bones display a cartilaginous state, and in time acquire a soft gelatinous consistence. No remedy is hitherto known for this affliction.

Excrescence of Gum.—Excrescences here are small red tumours of various consistence, rising generally with a circumscribed base, often to a great height, and differently attached to the gum in regard to their degree of adhesion. The cause of such excrescences is caries of the subjacent parts, either the teeth or socket. Their progress varies in different cases; but the removal of the caries terminates their growth. Where the removal of this caries, from its particular situation, cannot take place, or if in the tooth it is not submitted to, the extirpation of the tumour, from the inconveniences arising from it, becomes a necessary step, and this is done either by the ligature or excision. The application of the first is confined to these kinds where the attachment is made by a narrow neck, and the ligature passed over it and properly tightened, it will soon fall off; but where the attachment is made by a broad base, excision becomes then unavoidable. The mouth being secured by a speculum oris, if necessary, after seating the patient properly, and opposite to a clear light, the tumour is to be dissected away with a scalpel or curved knife, according to its situation, being first raised from the subjacent parts, by means of a hook, if necessary; but the incision is not to be carried so deep as to injure or lay bare the subjacent parts. The hemorrhage succeeding, if violent, may be restrained by filling the mouth with an astringent solution, as spirits of wine, solution of alum, &c. or lunar caustic, applied to the part. The healing of the wound will be promoted afterwards by an astringent wash, as the following. Take of rose water a quarter of a pint; tincture of rhatany, two table spoonfuls.—Mix; with which the mouth should be frequently rinsed out.

Looseness of Teeth.—The teeth, as formerly observed, from their use and situation, are particularly exposed to a premature decay. Hence they are found to fail when every other part of the system continues sound and entire. This decay proceeds either in a gradual manner, by caries; or it takes place at once, either from external violence, or from the connection being dissolved between the teeth and the retaining parts. The former case is not so frequent; and where happening, an attempt may be made to replace the loosened teeth, by pressing them into their place and keeping them firm in their situation by passing ligatures of Indian weed, or waxed silk, between them and the contiguous sound ones, which will support them, in the mean time preventing their being used, by a fluid diet, till adhesion takes place. But where the teeth are loosened from the second cause, the case is more difficult, and may depend on

1. Concretions upon them, loosening them from the gum.

2. From the morbid state of the gum itself; and,

3. From annihilation of socket.

The first is a very common cause, especially where cleaning the teeth is neglected, and the first teeth suffering in this way are the incisors of the under jaw. It seems also peculiar in some constitutions, in whom a preternatural collection of tartar in this part is conspicuous, and very frequently also it forms a cause of tooth-ach. In order to avoid this cause, the cleaning of the teeth should regularly take place.

This should be done by rubbing them with a soft sponge, armed with some mild tooth powder, such as the charcoal of the areca nut, finely levigated, in which there is nothing capable of injuring their surface, either chemically or mechanically. But when the tartar is accumulated in a great degree, and adheres firmly to the enamel, it should be removed by a dentist in the first instance, and this being done, the teeth will acquire their health and vigour.

In doing it the patient should be placed on a low seat, his head supported by an assistant, and his situation opposite to a clear light. The surgeon either stands or sits before him. The fore-finger of his left hand, being wrapt in a wet cloth, is then to be fixed firmly upon the point of the tooth to be scaled; and the back of the scaling instrument will form a point of resistance to the thumb. The tooth being thus supported, the instrument is to be applied to the under part of the incrustation, and pushed with firmness from below to the upper part of the tooth, being continued in its application till all foulness or crust is removed. The same process is to be successively repeated to all the teeth; after which a tooth powder is to be rubbed over them, by means of a brush or sponge, till they are sufficiently whitened. Where the foulness of the teeth is not removed in this way, chemical preparations must be tried, particularly the mineral acids; but this must be cautiously done, for they are apt to discompose the enamel.

The second cause of looseness of teeth, or morbid state of gum, is very frequent, and is general or partial. The first is known under the term of scurvy of the gums, denoted by their tendency to bleed on the slightest occasion, and by a discharge of matter from their union with the teeth and gum. It seems a peculiar affection of these parts, and is often no way connected with any constitutional disease, occurring in the stoutest people. Its progress is different in different persons; in some the whole teeth are loosened in three or four months, though in others this does not happen for years. From the gum the morbid softness extends to the socket, and then the teeth loosen; but what is remarkable, when the teeth are lost there is no more appearance of scurvy. The same state also occurs from the use of mercury. The best remedy for this disease is frequent scarification, which exciting inflammation, produces a tendency to adhesion. This, with frequent washing with cold water, and afterwards with the astringent lotion, above recommended, will in general remove it. Partial morbid state of the gum is also frequent, as already mentioned, in gum-boil, abscess, &c. The third cause of looseness, annihilation or absorption of the socket, occurs chiefly in old age; but it has been known at times to take place at an earlier period. Where it happens in old age, the gum is found united in 24 hours after the loss of the tooth. From this circumstance of the premature decay of this part of the body, various methods have been attempted to supply the loss of the teeth, and these consist either in the art of transplanting, or the insertion of artificial teeth.

Transplanting of Teeth.—Transplanting of teeth, is entirely a modern improvement. It is chiefly confined to the incisores and canini; and, in order to its success, several circumstances require attention in conducting the operation.

1. The sound state of the socket, and on this its whole success depends.

2. The root of the diseased tooth being unaffected by disease itself; hence it can never take place in case of a stump.

3. The mode of extracting the diseased tooth so as to prevent injury of the socket, which should be in a perpendicular direction, or with forceps. With respect to the last, the tooth to be inserted should be somewhat smaller and shorter than that removed, and the shape of its root, the chief point, should correspond as nearly as possible to that of the extracted one, though the root may be shortened a little with the file, if too long, without any injury. The person from whom the tooth is taken, should have passed fourteen and not exceed twenty-four, and the patient should never, if in our power, be above forty. The operation succeeds best when immediately performed, both in the extraction and insertion, though some allege that, in this operation even a dead

tooth has succeeded as well as one immediately removed and inserted.

The gums should cover part of the enamel of the transplanted tooth, and in inserting it they should be slightly pressed round it. The transplanted one must be secured to the neighbouring teeth by a ligature of sea-weed or fine waxed silk. In this state it is allowed to remain for twenty or thirty days, washing the parts occasionally with astringents; and a diet of a fluid nature is strictly enjoined. As soon as the tooth appears firm, the ligature is generally taken away; but for this there is no certain time, as a tooth will often fasten in eight or nine days, and at other times require some months with some. The fever and pain that attends the operation is often very considerable, and requires the antiphlogistic regimen to be very strictly put in practice. Where the operation succeeds, the transplanted tooth has been known to continue sound and preserve its colour for twenty or thirty years; but, in general, according to the experience of most dentists, they decay in six or eight years, and give, therefore, but a very temporary ornament and use. Though by this operation we are clear no constitutional disease can be introduced, whatever has been alleged, yet at times, from the irritation attending it, a peculiar ulceration of the part itself, or socket, has taken place, the specific nature of which we are still unacquainted with; and, as this ulceration has resisted the usual remedies employed against the different constitutional diseases of which it was suspected and frequently got well of itself, we are therefore warranted in the conclusion made.

From the uncertain success of transplanting, joined with these morbid consequences, which, though rare, occasionally ensue instead of this operation the use of artificial teeth is now generally preferred; and, such is the dexterity of modern mechanics, that they give the deception every appearance of reality.

Artificial Teeth.—Artificial teeth are made in three ways.

1. By fixing a new crown to the natural root.

2. By forming a complete tooth or teeth, and fixing them to the contiguous ones; and,

3. By forming as well as the teeth, an artificial socket fitted to the jaw.

The first is most employed in young people, the crown of the carious tooth is to be filed down to the gum, or within it, and a human tooth of a proper size is to be artificially fitted over the natural stump. This is done by drilling a hole in the stump, which must be firm, and introducing a golden wire screw, to which the new crown or artificial tooth is fixed. If it be not sufficient to keep it firm, it may be connected in the same way by drilling a hole in the neighbouring teeth. The second is used where one or more teeth are entirely removed, and its success depends on the ingenuity of the dentist in forming the shape accurately to the socket, and afterwards fixing it in a sufficient manner to the contiguous teeth, and in this is the chief art of the dentist displayed; these teeth are made of soft bone, ivory, or sea-horse tooth, as capable of taking the finest polish. The third, or forming a complete socket, adapted to the jaw, is a great convenience to age, and in order to its fitting, the mould must be taken in plaister of Paris of each rising and depression of the jaw, so as most accurately to correspond. When properly made it is worn with great ease; but it should be frequently taken out and washed and all red liquors should be avoided from staining it.

Tumours of the Tongue.—The situation of tumours of the tongue is generally on either side of it, and when large they are productive of much inconvenience and pain. Their collection is generally of a fluid, sometimes of a fatty, often of a calculous nature. When arising to a certain size, it bursts, terminating in an obstinate ulcer, The treatment of such tumours consists in laying them open, which will effectually remove the collection of a fluid or calculous nature; and where of a fatty kind, the extirpation of the latter altogether, if not deeply seated, may be performed; where deep, a pair of small forceps, catching hold of the tumour will assist the operation. The sore is to be afterwards washed with astringent solutions. In performing the operation should there arise much hemorrhage, it may be stopped by dilute spirit of vitriol or alcohol or, that failing by the actual cautery.

Ulcers of the Mouth and Tongue.—Ulcers of the mouth and tongue are equally common as in other parts of the body; and they are generally either of a venereal, cancerous, scrophulous, or scorbutic nature. When their nature is once determined, the treatment is then pointed out; and the constitutional remedies must be seconded by local applications. One source of all such ulcerations here, not common in other parts is irritation, or fretting of the contiguous surface, from a pointed or ragged tooth. As a preliminary step, the removal of this cause, by smoothing its surface, or removing the tartar covering it, must be attempted.

The cure may afterwards be effected, and the recurrence of the mischief effectually prevented by the treatment recommended in the following chapter.

OF THE

MANAGEMENT, &c.

OF THE

TEETH.

IT is a curious fact that civilized Man is more subject to caries of the teeth than any other animal, which has been attributed by some writers to a want of cleanliness, but as those are subject to disease of the teeth who clean them regularly, it cannot be the only cause. The ancients not being so subject to caries of the teeth as the moderns, a more rational conclusion is, that it is the consequence of the use of luxuries, especially preserves, which have lately been introduced into fashionable life. Sound and clean teeth are not only highly ornamental, but highly beneficial to the health of the body, for the food being divided and prepared by them for digestion in the stomach, they may be considered as forming a part of the digestive organs. The proper solution of the food to form chyle for the support of the body, in a weak or even healthy stomach, must in a great measure depend on the articles being properly masticated. During the grinding process of the teeth, the food is also well blended with saliva, and a considerable absorption of the succulent part of animal food, takes place from the surface of the palate and tongue; advantages which the constitution is deprived of if the teeth are not sound. Other circumstances equally hurtful, are, that from carious teeth, there arise considerable putrid effluvia, contaminating the air, both in its passage to and from the lungs, and also a putrid discharge which mixes with the food during mastication.

Another very important fact is, that the irritation of the nerve of a decayed tooth is often extended throughout the nerves of the jaw, the cheek, the eyes, the ears, and sometimes even to the brain, producing the distressing disease termed by the French, TIC DOLOUREUX, rheumatism, gum boils, and, not unfrequently, caries of the jaw bone. A healthy state of the teeth is therefore, of greater importance to the health of the body than is generally imagined.

Heat to a certain degrree is also highly detrimental to the vitality of the teeth; hence we find that those animals who live chiefly on hot food are most subject to carious teeth. Increased circulation in the gums, whether the effect of mercury or general fever of the system, is also very injurious to the teeth, and hence caries of the teeth are a common consequence of salivation, and inflammatory fever.

The use of acids, particularly the mineral kind, has been supposed to be injurious to the enamel of the teeth; but I have found sugar to have a more injurious effect than acids, which I attribute partly to its chemical action on the enamel, and its pernicious effects on the digestive organs.—It is also a prevailing opinion with dentists in this country, that, if the enamel of the tooth be much injured or broken, caries will certainly follow, it is, however, a fact, that when a tooth is broken by an accident, the process of caries does not take place even in scrofulous subjects.

Decay of the teeth frequently has its

source in the constitution. In children it is often an attendant on rickets, and in adults frequently occurs in scrofulous habits. In a ricketty child the disease is perhaps of little consequence, as the system does not require the substantial support as that of an adult; the teeth are gradually detached, and new ones sooner or later succeed.

In scrofulous subjects, the same local management as I shall hereafter point out, will be proper; but it may be necessary to observe, that in such people the local causes of caries have greater effect, and therefore by them should be more guarded against. It is a question whether carious teeth, evidently constitutional, should be extracted. It being a prevalent opinion, that a diseased tooth will contaminate its neighbour, people generally have recourse to extraction, particularly when the tooth becomes painful.

In scrofulous subjects, or when the caries are constitutional, I have uniformly found the disease to take place in another tooth, soon after the operation, which has led me, in such cases, never to recommend its removal; and of those who have attended to my advice, I have had the satisfaction to learn that the other teeth continued perfectly healthy. The decayed tooth or teeth should, however, be filled as already recommended, which, by excluding animal or vegetable matter and air, will prevent the process of caries, and consequently the irritation of the nerve.

Carious teeth being attributed, by some writers, entirely to a want of cleanliness, people have been induced, in order to avoid this evil, to adopt their mode of cleaning the teeth, which, I am certain, from long experience and observation, has been productive of the very mischief they were desirous to avoid. A tooth as already observed, is a bony substance, the interior part of which is of a less firm texture than the external. The fang enters the jaw bone, and is surrounded by the aveolar process, over which is a firm, fleshy substance, termed the gum. This substance, by the firmness of its texture, tends to keep the teeth more secure in their sockets, and abounds with blood vessels, no doubt for the purpose of conveying nourishment to the teeth. It must appear, therefore, very obvious, that the health of the teeth must very much depend on the state of the gums. Hence a person by cleaning his teeth with a *coarse mineral* tooth powder, and a hard brush, does considerable violence to the gum, especially the edges, indeed so much so, that it is very common to rupture small blood-vessels, in consequence of which, a considerable irritation is produced, and kept up by the daily use of the brush. The edges of the gums inflame and tumify, and the whole gum becomes spongy, and the hair of the brush spreading in different directions, the gum is separated from the teeth, and thus the source of nourishment of the teeth, and particularly the external part, (the enamel) is nearly, if not entirely cut off, in consequence of which, the teeth become loose, and in time fall out, if disease do not take place in their substance. From the irritated and detached gum, there is also a morbid secretion, which collecting on the teeth, and becoming of a firm texture, forms what is termed tartar, for the removal of which, the operation of cleaning by the brush, to those unacquainted with the cause, appears to be more necessary ; and it frequently happens that many people at the age of forty, have, by this practice, the substance of their gums so abraded, that the upper part of the fangs of the teeth and aveolar process of the jaw are exposed. Instead, therefore, of advising people to keep their teeth clean by the mechanical friction of a hard brush, and a coarse mineral powder, I seriously advise them to attend to the state of the gums; and when the teeth require cleaning, (which they will seldom do if they attend to my advice,) not to irritate the edges of the gums by the use of a hard brush, or a coarse powder. It is a very common practice in this country, to make use of a lotion of tincture of myrrh, which, by stimulating the gums, I am also certain is injurious. Arquebusade, and other lotions made of spirit, and the essential oils of vegetables, are also pernicious.

The best time for cleaning the teeth is before breakfast. I have long adopted the following method, which, from repeated and extensive experience, I can confidently recommend to my readers. Before its adoption, I suffered much by tooth ach, and pains in the face and head. Indeed the advantages I have derived from it have been so great, that I conceive it my duty to communicate it to the public, in which I have no other interest or view, than to lessen the sum of human sufferings.

The first thing every morning, I rinse my mouth out with cold water; I then gently pass over the gums inwardly and outwardly a fine piece of sponge (fastened to an ivory handle) moistened with an equal quantity of tincture of the Rhatany root and Rose Water after which, I rub the surface of the teeth with a similar piece of sponge, moistened with the diluted tincture of Rhatany root as above; with the surface covered with finely levigated charcoal of the Areca nut. This I finish by rinsing the mouth out again with cold water. I only employ a brush for removing any morbid secretion of the gums that may collect on the inside and between the teeth. If this simple treatment be adopted, I will engage for it, that the person shall remain free from any fresh disease of the teeth, and pains in the jaw, and that carious teeth, which he may have had at the time will be rendered sweet, and the progress of the disease effectually suspended.

For the knowledge of the charcoal of the Areca nut, I am indebted to Dr. Lynd. Previous to my acquaintance with it, I made use of bark powder, but the charcoal of the Areca nut, I find to answer best, not only in destroying offensive effluvia, but from a slight alcalescent property, more effectual in removing what is termed tartar. The fibres of the bark, although in fine powder, I am certain, irritate the edges of the gum. The Areca charcoal, I procure from Messrs. Reece and Co. at the Chemical and Medical Hall, 171, Piccadilly, by the recommendation of Dr. Lynd, who keep it very finely levigated for the purpose of a tooth powder. For my acquaintance with the virtues of the Rhatany root, I stand indebted to Dr. Richard Reece's very excellent Treatise on popular medicine, entitled the Medical Guide.

Prior to this Author's recommendation of the rhatany root, I was in the habit of employing a tincture of bark and gum kino; but in point of astringency and pleasantness, the tincture of rhatany, I find, is decidedly entitled to a preference.

The general adoption of the charcoal of the Areca nut as a dentifrice, has induced some interested men, terming themselves Dentist to oppose its use. For the ridiculous reason that no tooth powder should be used, without the advice of a Dentist, yet some of these consciencious men puff off the most dangerous compositions, as safe, and efficacious tooth powders. The fact is that if the charcoal of the Areca nut, were the only tooth powder employed in this country, and the directions above given were strictly followed, there would be no necessity of having recourse to Dentists.

The charcoal of the Areca nut, has been employed by the Natives in the East Indies, from time immemorial, and it is well known that no people in the world possess more healthy or beautiful teeth, or are more free from caries and tooth ach. It has been said that the charcoal of the Areca nut, cannot possess any quality superior to that of wood.

This is a very erroneous assertion, for the powdered charcoal of the Areca nut, is both smooth and alcalescent, while that of the wood is a common dry powder, which from its firmness and fibrous quality may do mischief; as proofs of the innocent quality and efficacy of the Areca charcoal, in preserving and cleaning the teeth, I subjoin in the following respectable Testimonies, to which I may add that the Queen and Branches of the Royal Family have used it for many years. As the health of the teeth as well as every part of the body, greatly depends upon the stomach properly performing its office, it may not be amiss to observe in this, whatever tends to disturb its functions should be avoided, especially spirits, and wine in excess. Costiveness being also highly detrimental to the teeth, the bowels should be kept open by the occasional use of an aperient medicine, which will at the same time promote digestion, remove obstruction in the liver, and purge the system of bile. For these purposes a pill is sold under the name of the Bengal bilious pill, by Mr. Stanger of 150, Oxford Street, which I found superior to any composition, or medicine that I have known to be used. This pill was recommended to me by a very experienced Physician, who resided many years in Bengal, and who employed them himself for upwards of twenty years. Dr. Reynolds was also in the habit of using them himself, and in his practice, found them to succeed in the most obstinate bilious affections, and disorders of the stomach.

FROM

DR. JAMES LYND,

LATE

Head Hospital-Surgeon on the Bengal Establishment.

The betel nut is called Areca by the Portuguese, Dutch and other Low Europeans, who do not understand the Hindostan and Persian languages. In the latter it is called suparey, having no soporific quality, any more than the fragrant pawn or betel leaf, nor have I seen it grow wild, or twine round trees in jungles, in the many campaigns and journeys which I have made during twenty-five years, in the East India Company's extensive dominions, and of our allies twelve hundred miles from Calcutta.

The Areca is most highly useful as the very best dentifrice that can be used; for since modern chemistry has discovered the wonderful medicinal powers of charcoal, the areca or betel nut charcoal must be superior to any other for a dentifrice, which I can recommend, having used it twenty-five years in Bengal.

When I arrived in England, after a long voyage of seven months, supposing my teeth wanted the aid of a Dentist, I applied to a respectable one in London, who was astonished to find teeth so sound, in a person of my age; and also observed, that all the *East Indians who employed him, had better teeth than the people of England of similar age*, and which *I attribute to the use of the Areca nut tooth powder,* which must be infinitely more efficacious than charcoal prepared from any other vegetable substance whatever.

The natives of India rub their teeth up and down with brushes, made of chewed ends of fibrous soft wood, dragon's blood, canes, and mallow roots, which clean the interstices of the teeth, whereas the common tooth brushes, by rubbing in a horizontal direction, only wear off the enamel from the prominent parts of the teeth, which the famous Dentist, Mr. Beardmore has cautioned us not to do, and I have contrived a brush to prevent it.

The dentifrice prepared by powdering charcoal, cannot be equal in virtue to the mungun prepared from the Areca, betel nut, or suparey, however they may puff it off by quackish advertisements.

JAMES LYND, M. D.

London, Jan. 11*th*, 1806.

From Sir Mark Wood, Bart. M. P.

Pall-Mall, April 10th, 1806.

Sir,

In answer to your inquiries respecting the betel nut, and the general use of it, when burnt into charcoal, as a dentifrice, I beg leave to inform you, that it is in general estimation, as well by the natives as the resident Europeans, in India, and considered not only a great preservative for the teeth, but by far the safest tooth-powder that can be used.

I, am,
SIR,
Your obedient Servant,
M. WOOD.

FROM

DR. REECE.

" THE opinion I have already given in a late publication* on carbonic tooth-powder, will apply in equal commendation to the calcined betel nut, with this superior advantage to the latter, of its being more smooth, and free from fibrous particles, owing to its being formed from the nut. The benefit accruing from this difference is, that it preserves and renders the enamel of the teeth more clear, and destroys likewise fætor arising from carious or decayed teeth; and as it affords an alcalescency, proves a powerful remedy for removing tartar.

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*Domestic Medical Guide.

From Baron Van Lynden, late Resident, in a high official Capacity, at Ceylon, under the Dutch Government.

"I really believe the areca nut, when calcined, to be the most effectual tooth powder of any known; it does, to my knowledge, very much preserve the teeth, and by a constant use keeps them in the most beautiful appearance. My wife and family continually make use of it at Ceylon, and I have derived considerable benefit from the virtues of this unparalleled dentifrice. I do most readily confirm whatever may be said in its favour, as certainly it merits all praise.

"VAN LYNDEN."

Extract from Mr. R. Winstanley's Letter in the Universal Magazine, who after making some Strictures on Mr. Hutchinson's Remarks, and correcting several assertions which he considers erroneous, proceeds thus:

" As to its dentifrical qualities I do not combat, but on the contrary, most willingly subscribe to every eulogium that can be alleged in its behalf, since I have both witnessed and experienced several facts of the very efficacious powers of this nut, in preserving and improving the teeth, and I believe there is nothing that can any ways equal, much less surpass, the inestimable qualities of the areca."

FINIS.

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> "Armed by virtue, when I point the pen,
> Brand the bold front of shameful guilty men;
> Hear this, and tremble, ye that escape the———"

This Work is become very scarce, and is to be obtained only at the Chemical and Medical Hall, 171, Piccadilly.